

ANALYTICAL BIOCHEMISTRY

*An International Journal of
Analytical and Preparative Methods*

EDITORIAL COMMITTEE

N. O. KAPLAN, *Co-Chairman*

W. D. McELROY, *Co-Chairman*

EXECUTIVE EDITORS

J. N. ABELSON

Y. C. LEE

S. L. BERGER

W. M. LOVENBERG

L. BRAND

O. H. LOWRY

P. BRODELIUS

K. MOSBACH

W. DE JONG

W. D. PHILLIPS

M. DeLUCA

J. J. PISANO

T. FRIEDMANN

N. S. RADIN

O. GABRIEL

J. F. RIORDAN

W. F. HARRINGTON

E. ROZENGURT

W. B. JAKOBY

J. E. SEEGMILLER

M. D. KAMEN

B. L. VALLEE

H. VAN VUNAKIS

W. S. ALLISON, *Assistant to Co-Chairmen*

FOUNDING EDITOR

ALVIN NASON

Volume 142, 1984



ACADEMIC PRESS, INC.

(Harcourt Brace Jovanovich, Publishers)

San Diego Orlando New York London

Toronto Montreal Sydney Tokyo

Copyright © 1984 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (21 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1984 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0003-2697/84 \$3.00

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 142

NUMBER 1, OCTOBER 1984

Nylon Shavings Enzyme Reactor for Batch Determination of Urea	<i>Kazi D. Begum and Horacio A. Mottola</i>	1
Unconsidered Factors Affecting Hydrogenase Activity Measurement	<i>Csaba Bagyinka, N. A. Zorin, and Kornel L. Kovács</i>	7
Platinum Determination in <i>cis</i> -Dichlorodiammineplatinum(II)-DNA Complexes by Differential Pulse Polarography	<i>Oldřich Vrána and Viktor Brabec</i>	16
Measurement of α -Keto Acids in Plasma Using an Amino Acid Analyzer	<i>Simon P. Robins and Peter J. Reeds</i>	24
Protamine Sulfate Precipitation: A New Assay for the <i>Ah</i> Receptor	<i>Michael S. Denison, Jay Fine, and Christopher F. Wilkinson</i>	28
A Method for the Selective Release and, Hence, Assay of the Carbohydrate Moieties of Collagen	<i>Ping W. Tang and J. Michael Williams</i>	37
Fast-Heating Mass Spectrometry of Phosphatidylcholine, Lysophosphatidylcholine, Phosphatidylethanolamine, and Sphingomyelin	<i>Daniel Dessort, Marcel Mersel, Pierre Lepage, and Alain Van Dorsselaer</i>	43
Use of S_1 Nuclease and Formamide in Combination for the Reassociation Studies on GC-Rich DNA	<i>Chanchal Sadhu, Santanu Datta, and K. P. Gopinathan</i>	53
A Quantitative Determination by Capillary Gas-Liquid Chromatography of Neutral and Amino Sugars (as <i>O</i> -Methyloxime Acetates), and a Study on Hydrolytic Conditions for Glycoproteins and Polysaccharides in Order to Increase Sugar Recoveries	<i>Jean-Richard Neeser and Thomas F. Schweizer</i>	58
Conjugation of Antibodies with Bifunctional Chelating Agents: Isothiocyanate and Bromoacetamide Reagents, Methods of Analysis, and Subsequent Addition of Metal Ions	<i>Claude F. Meares, Michael J. McCall, Dayton T. Reardan, David A. Goodwin, Carol I. Diamanti, and Maureen McTigue</i>	68
"Golden Blot"—Detection of Polyclonal and Monoclonal Antibodies Bound to Antigens on Nitrocellulose by Protein A-Gold Complexes	<i>Daniela Brada and Jürgen Roth</i>	79
The Purification of Myosin Long Subfragment 2 by DEAE-Sepharose CL-6B Ion-Exchange Chromatography	<i>F. Borrás-Cuesta and E. Truche</i>	84
Treatment of Ultracentrifuge Tubes in a Glow Discharge Makes Their Surfaces Wettable	<i>Max Zollinger, Margaret D. Mamet-Bratley, and Barbara Karska-Wysocki</i>	88
Construction of a Microprocessor-Controlled Pulsed Quench-Flow Apparatus for the Study of Fast Chemical and Biochemical Reactions	<i>Jörg Langowski, Claus Urbanke, and Ekkehard Schuppe</i>	91
The Stability of the <i>o</i> -Phthalaldehyde/2-mercaptoethanol Derivatives of Amino Acids: An Investigation Using High-Pressure Liquid Chromatography with a Precolumn Derivatization Technique	<i>J. D. H. Cooper, G. Ogden, J. McIntosh, and D. C. Turnell</i>	98
High-Performance Liquid Chromatographic Quantitation of Collagen Biosynthesis in Explant Cultures	<i>Norma P. Stimler</i>	103
Effect of Unstirred Layers on Binding and Reaction Kinetics at a Membrane Surface	<i>A. S. Verkman and James A. Dix</i>	109

The Use of Neutral Red as an Intracellular pH Indicator in Rat Brain Cortex <i>in Vivo</i> <i>Joseph C. LaManna and Kimberly A. McCracken</i>	117
Microcomputer Interface for Computer-Controlled Enzyme Kinetic Studies with the Monolayer Technique <i>Gabrielle M. Donné-Op den Kelder, Harry van der Wildt, and Gerard H. de Haas</i>	126
Differences in Retention Behavior between Small and Large Molecules in Ion-Exchange Chromatography and Reversed-Phase Chromatography <i>Björn Ekström and Gunilla Jacobson</i>	134
A Solid-Phase Radio-Binding Assay for the Characterization of Lectin Recognition <i>A. P. Lesniak and Edwin H. Liu</i>	140
Distribution of Chromaffin Secretory Vesicles, Acetylcholinesterase, and Lysosomal En- zymes in Sucrose and Percoll Gradients <i>Manfred Gratzl</i>	148
Quantitative Determination of Coenzyme Q ₁₀ in Human Blood for Clinical Studies <i>Surasi Vadhanavikit, Naoki Sakamoto, Nobuyuki Ashida, Takeo Kishi, and Karl Folkers</i>	155
Determination of Rhodanese Activity by Tetrazolium Reduction <i>Carlo Cannella, Rodolfo Berni, and Giorgio Ricci</i>	159
Thin-Layer Chromatography of Thiosulfonate Anions <i>A. Westley and John Westley</i>	163
Common Conditions for High-Performance Liquid Chromatographic Microdetermi- nation of Aldoses, Hexosamines, and Sialic Acids in Glycoproteins <i>Susumu Honda and Shigeo Suzuki</i>	167
Continuous Spectrophotometric Assay of Pantetheinase Activity <i>Silvestro Duprè, Roberta Chiaraluce, Mirella Nardini, Carlo Cannella, Giorgio Ricci, and Dorian Cavallini</i>	175
Analysis of Picogram Quantities of Protein in Subnanoliter-Size Samples <i>David Zawieja, B. J. Barber, and Richard J. Roman</i>	182
Production and Purification of Murine Monoclonal Antibodies: Aberrant Elution from Protein A-Sepharose 4B <i>John R. Stephenson, John M. Lee, and Peter D. Wilton-Smith</i>	189
Determination of the Glucosidase-Stimulating Proteins by Competitive Enzyme-Linked Immunoassay <i>Subhash C. Datta and Norman S. Radin</i>	196
A Fluorometric Determination of Urinary 17-Hydroxycorticosteroids Using Benzamidine <i>Yoshihisa Yamaguchi and Tokuichiro Seki</i>	204
Reevaluation of the Reactivity of Hydroxylamine with O ₂ ⁻ /HO ₂ <i>Benon H. J. Bielski, Ravindra L. Arudi, Diane E. Cabelli, and Wolf Bors</i>	207
Purification of the <i>Neurospora crassa</i> Plasma Membrane H ⁺ -ATPase by High-Pressure Liquid Chromatography in the Presence of Sodium Dodecyl Sulfate <i>Michael R. Sussman</i>	210
Isolation of the Mitochondrial F ₁ -F ₀ Adenosine Triphosphatase by Sepharose-Hexy- lammonium Chromatography: Properties and Reconstitution in Liposomes <i>Georges Dreyfus, Heliodoro Célis, and Jorge Ramírez</i>	215
Immunogold for Detection of Antigen on Nitrocellulose Paper <i>Yau-Heiu Hsu</i>	221
Chromatographic Separation of Extruded Iron-Sulfur Cores from the Apoproteins of <i>Clostridium pasteurianum</i> and Spinach Ferredoxins in Aqueous Triton X-100/ Urea <i>Franco Bonomi and Donald M. Kurtz, Jr.</i>	226
High-Performance Ion-Exchange Separation of Oxidized and Reduced Nicotinamide Adenine Dinucleotides <i>George A. Orr and John S. Blanchard</i>	232

BOOK REVIEWS

- Methods in Enzymology*, Vol. 104, *Enzyme Purification and Related Techniques*, Part C. Edited by William B. Jackoby (S. P. Colowick and N. O. Kaplan, series eds.)
Reviewed by Alan H. Mehler 235
- Analytical Techniques for Heavy Metals in Biological Fluids*, Edited by S. Facchetti
Reviewed by Peter McPhie 236

ERRATUM

- Volume 138, Number 2, 1984: George P. Kreishman, Michael J. Simone, Robert M. Hines, and Elwood E. Brooks, "Detection of a Bulk Water Structure Related Conformational Change in Horse Heart Cytochrome *c* in Cl^- - H_2O Solutions Utilizing Spectrofluoroelectrochemical Techniques," pp. 360-364 237

NUMBER 2, NOVEMBER 1, 1984

- Review: Description of Analytical Problems Arising from Elevated Serum Solids
Michael W. McGowan, Joseph D. Artiss, and Bennie Zak 239
- Adsorption Chromatography on Toyopearl: A Single-Step Alternative to Salt Fractionation of Protein Mixtures
Alexander V. Galkin, Irina E. Kovaleva, and Sergei L. Kalnov 252
- An Evaluation of Purity Criteria for Bovine Rod Outer Segment Membranes
C. Salesse, F. Boucher, and R. M. Leblanc 258
- Characterization of Rat Lutropin Charge Microheterogeneity Using Chromatofocusing
Brooks A. Keel and H. Edward Grotjan, Jr. 267
- Immunological Screening of Standard cDNA Libraries in pBR322 Vectors: Detection of Human Fibrinogen and Prothrombin cDNA Clones
Henri Plaisancié, Yvonne Alexandre, Georges Uzan, Claude Besmond, Richard Benarous, Monique Frain, José Sala Trepas, Jean-Claude Dreyfus, and Axel Kahn 271
- Free Malonaldehyde Determination in Tissues by High-Performance Liquid Chromatography
A. Saari Csallany, Ming Der Guan, John D. Manwaring, and Paul B. Addis 277
- Iodinated Melatonin: Preparation and Characterization of the Molecular Structure by Mass and ^1H NMR Spectroscopy
Olli Vakkuri, Erkki Lämäsä, Erkki Rahkamaa, Heikki Ruotsalainen, and Juhani Leppäluoto 284
- Reevaluation of Assay Methods and Establishment of Kit for Superoxide Dismutase Activity
Yoshihiko Ōyanagui 290
- Radiometric Assays of *N*-Acetylglucosaminylphosphotransferase and α -*N*-Acetylglucosaminyl Phosphodiesterase with Substrates Labeled in the Glucosamine Moiety
Yoav Ben-Yoseph, Michael S. Baylerian, and Henry L. Nadler 297
- Application of Commercial Enzymes to Measure the Activity of the Arginine Pathway-Urea Cycle in Intact Cells
Carol J. Lovatt and Anne H. Cheng 305
- A Combined Assay of Three Lysosomal Marker Enzymes: Acid Phosphatase, β -D-Glucuronidase, and β -*N*-Acetyl-D-hexosaminidase
Bernd-Michael Löffler, Bernd Hesse, and Hans Kunze 312
- Circular Dichroism Analyses of Membrane Proteins: An Examination of Differential Light Scattering and Absorption Flattening Effects in Large Membrane Vesicles and Membrane Sheets
B. A. Wallace and David Mao 317

Assay of Long-Chain Acyl-CoAs in a Complex Reaction Mixture	<i>H. Juguelin and C. Cassagne</i>	329
Identification of Cysteine-Containing Peptides in Protein Digests by High-Performance Liquid Chromatography	<i>Curtis S. Fullmer</i>	336
Separation of Four Glucuronides in a Single Sample by High-Pressure Liquid Chromatography and Its Use in the Determination of UDP Glucuronosyltransferase Activity toward Four Aglycones	<i>Zhiqiang Liu and Michael R. Franklin</i>	340
A Sensitive Enzymatic Assay for Determination of Cholesterol in Lipid Extracts	<i>F. Omodeo Salè, S. Marchesini, P. H. Fishman, and B. Berra</i>	347
An <i>in Vivo-in Vitro</i> Alkaline DNA Unwinding Assay for Hepatic DNA Damage: Comparison with the Alkaline Sucrose Gradient Centrifugation Technique	<i>Richard D. Storer and Rory B. Conolly</i>	351
Purification of Major Variable-Surface Glycoproteins from African Trypanosomes by Reverse-Phase High-Performance Liquid Chromatography	<i>Michael W. Clarke, Robert W. Olafson, and Terry W. Pearson</i>	360
Continuous Spectrophotometric Assay for Aminoacyl-tRNA Synthetases	<i>Gu-gang Chang, Foo Pan, Yee-hong Lin, and Hsien-yu Wang</i>	369
Anion-Exchange Chromatography of Proteins on AG MP-1 Using High-Performance Liquid Chromatography Equipment	<i>John T. Axelson, James W. Bodley, Jeou-Yuan Chen, Patricia C. Dunlop, Luann P. Rosenthal, Robert W. Viskup, and Timothy F. Walseth</i>	373
A Method for the Determination of Total, Free, and 5-Fluorodeoxyuridylate-Bound Thymidylate Synthase in Cell Extracts	<i>Daniel J. Fernandes and Stephen K. Cranford</i>	378
[³ H]Tryptophan-[¹⁴ C]Proline Dual Label Method for the Simultaneous Determination of Collagen and Noncollagen Protein Production	<i>Michael Flaherty and Mario Chojkier</i>	386
Simultaneous Determination of Guanine Nucleotides in Rat Brain by High-Performance Liquid Chromatography with Dual-Electrochemical Detection	<i>Toshifumi Yamamoto, Hirotooshi Shimizu, Takeshi Kato, and Toshiharu Nagatsu</i>	395
Determination of Molecular Weights by Differential Cryoscopy on Small Volumes of Dilute Solutions of Oligopeptides	<i>V. G. Davenport, E. R. Stimson, and H. A. Scheraga</i>	400
Coomassie Brilliant Blue Staining of Lipids on Thin-Layer Plates	<i>Kazuo Nakamura and Shizuo Handa</i>	406
An Evaluation of Fluorometric Proteinase Assays Which Employ Fluorescamine	<i>Christopher H. Evans and John D. Ridella</i>	411
Analytical Isoelectric Focusing Using a High-Voltage Vertical Slab Polyacrylamide Gel System	<i>Gary G. Giulian, Richard L. Moss, and Marion Greaser</i>	421
Counterflow Immunoisotachopheresis on Cellulose Acetate Membranes	<i>G. I. Abelev and E. R. Karamova</i>	437
Apparatus and Method for Preparative Gel Electrophoresis	<i>Matthias A. Hediger</i>	445
Separation of Endocytic Vesicles in Nycodenz Gradients	<i>Grete M. Kindberg, Terence Ford, Rune Blomhoff, David Rickwood, and Trond Berg</i>	455
Purification of Thiol:Protein-Disulfide Oxidoreductase from Bovine Liver	<i>Svein Bjelland, Bent Foltmann, and Knut Wallevik</i>	463
Luminol Assay for Microdetermination of Superoxide Dismutase Activity: Its Application to Human Fetal Blood		

Size-Exclusion High-Performance Liquid Chromatography and Sodium Dodecyl Sulfate-Polyacrylamide Gel Electrophoresis of Proteins: A Comparison	467
<i>Dj. Josić, H. Baumann, and W. Reutter</i>	473
Serum Indole-3-acetic Acid in Control Subjects and Newly Abstinent Alcoholics after an Oral Loading with L-Tryptophan: A Preliminary Study Using Liquid Chromatography with Amperometric Detection	
<i>Matthew J. Friedman, Ante M. Krstulović, Henri Colin, Georges Guiochon, and Kathleen Pajer</i>	480
Purification of Human Interleukin 2 to Apparent Homogeneity and Partial Characterization of Its Receptor	
<i>Roberto Fagnani, Herbert L. Cooper, and John Mendelsohn</i>	487
Direct Determination of Uracil in [³² P,uracil- ³ H]Poly(dA · dT) and Bisulfite-Treated Phage PM2 DNA	
<i>David A. Green and Walter A. Deutsch</i>	497
A Rapid-Filtration Technique for Membrane Fragments or Immobilized Enzymes: Measurements of Substrate Binding or Ion Fluxes with a Few-Millisecond Time Resolution	
<i>Yves Dupont</i>	504
Determination of Phosphoethanolamine in Urine or in the Presence of High Taurine Concentrations	
<i>G. Gundlach, A. Kabisch, R. Voegeli, H. Pralle, and S. Hartenfels</i>	511
An Economic Volt-Hour Integrator, Compatible with Commercial and Homemade Electrophoresis Power Supplies	
<i>Malte Rutschmann, Eberhardt von Berg, Lothar Kuehn, and Burkhardt Dahlmann</i>	515
Purification of a UTP: D-Glucose-1-phosphate Uridyltransferase from Golgi Apparatus of Cat Liver by Affinity Chromatography on UTP-Agarose	
<i>G. Azzar, F. Persat, A. Degiuli, and R. Got</i>	518
Colorimetric Determination of Microgram Quantities of Polylysine by Trypan Blue Precipitation	
<i>Wei-Chiang Shen, Daming Yang, and Hugues J.-P. Ryser</i>	521
A ³² P Postlabeling Assay for Determining the Incorporation of Bromodeoxyuridine into Cellular DNA	
<i>William J. Bodell and Jytte Rasmussen</i>	525
High-Performance Liquid Chromatographic Determination of the Distribution of Naturally Occurring Folic Acid Derivatives in Rat Liver	
<i>Susan D. Wilson and Donald W. Horne</i>	529
A Radioenzymatic Assay for Plasma Adenosine	
<i>Deborah Campano German and Nicholas M. Kredich</i>	536
Microcontrolled Release of Biologically Active Compounds in Chick Embryos: Beads of 200-μm Diameter for the Local Release of Retinoids	
<i>Gregor Eichele, Cheryll Tickle, and Bruce M. Alberts</i>	542
A One-Step Enzymatic Assay for Sucrose with Sucrose Phosphorylase	
<i>Paul R. Birnberg and Mark L. Brenner</i>	556
AUTHOR INDEX FOR VOLUME 142	562

The Subject Index for Volume 142 will appear in the December 1984 issue as part of a cumulative index for the year 1984.

